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Reply To: 3420 Lat 39.74842 Lon -122.91944 Date: September 7, 1990

Subject: Evaluation of Pest Conditions in the Wye Timber Sale, Covelo RD (FPM Rept. No. N90-7)

To: Forest Supervisor, Mendocino National Forest

On July 27, 1990 Dave Schultz, entomologist, and I visited two stands, T-8 and T-16, in the Wye timber sale with Debbie Fleming, Covelo Ranger District. Debbie is writing prescriptions for these stands as part of her silvicultural certification.

Stand T-16

Stand T-16 (T. 22 N., R. 10 W., section 14) is 37 acres in size in the ponderosa pine type. There appears to be two aggregations in the stand. One has scattered, mature overstory pines with an understory of pine and some Douglas-fir. The other aggregation has more of a single layer stand structure with mature pines. Large black oaks are a significant component throughout the stand. Site quality is a Dunning site class I. Management objectives for the stand include timber production, wildlife habitat, and visual quality. The area has a partial retention visual quality objective. The initial prescription for the stand includes an overstory removal and a shelterwood with an underplanting of ponderosa pine, Douglas-fir, and sugar pine.

In the west side of the stand is a pocket of western dwarf mistletoe, Arceuthobium campylopodum, in the ponderosa pine. This infection is in some of the overstory pines and in the pole-size understory. It is causing some witches' brooming in the lower branches of the overstory pines, but the level of infection is low. The understory trees are being heavily infected, however. Because of the overstory source of infection and the dense stocking and stand stagnation, these smaller trees are being impacted by the dwarf mistletoe. Some of the trees have already been killed by insect attacks, notably mountain pine beetle (Dendroctonus ponderosae), as a result of stress caused by dwarf mistletoe and the current drought. Another disease that is present in the pines at very low levels is Elytroderma disease (caused by Elytroderma deformans). This disease will not have any adverse effect on the pines in this stand, but it can cause some branch brooming which could be misidentified as dwarf mistletoe infection. If trees are selectively removed because of dwarf mistletoe, marking crews need to be sure they properly identify the cause of any branch brooming.

In the single-story aggregate in the east side of the stand, a large pocket of pine mortality was present. Trees had been attacked by bark beetles, including western pine beetle (D. brevicomis) and red turpentine beetle (D. valens). Trees in the area had been salvaged in 1989 and additional trees had

subsequently died. Low soil moisture and dense stocking were the basic cause of this mortality.

In addition to the above mentioned insects and diseases, two others of concern were discussed. These were pine engraver beetles (Ips spp.) and armillaria root disease (caused by Armillaria sp.).

The proposed prescription will produce a considerable amount of green pine slash, both from the tops of harvested trees and from precommercial thinning in the dense thickets. Larger diameter pine slash (> 3 inches diameter) can serve as habitat for pine engraver beetles. This material permits a buildup of the beetle populations that can emerge and attack nearby residual pines. Timing of slash creation is important for this to occur, with slash produced from the winter through early summer (December - July) being the most favorable. The result can be top-killing and loss of leave trees in the stand.

Implementing one or more of the following measures can help to prevent Ips buildup and damage to residual trees. Selection of a specific measure will depend on the situation and conditions at the time of the activity.

-Plan logging activities from mid-July to January.
-Use freshly cut pine to the smallest diameter practical.
-Lop and scatter limbs in openings to expose to the sun.
-Chip fresh slash or break into small pieces with heavy machinery.
-Burn slash piles before broods emerge.

The other concern that was raised was the possibility of an increase of armillaria root disease because of the amount of oak that is to be removed. This fungus has been reported to kill conifers, especially in association with oaks. Our knowledge of the fungus is limited. Various biological species exist with different levels of pathogenicity. In California, it is unclear what species are present, although we see signs of the fungus commonly on downed trees. There are only a few places known where it appears that armillaria root disease is attacking conifers in California, even though there has been considerable manipulation of mixed pine-oak forests in the state. At this time, since armillaria root disease has not been observed causing damage to conifer stands in the vicinity of the Wye timber sale, the proposed prescription should not be altered because of the disease. The effect of the high level of oak basal area in the stand will probably have a much greater impact on future stand growth and productivity than will the presence of armillaria root disease.

The proposed prescription for this stand can improve stand health and productivity. The area with dwarf mistletoe will be improved if the infected overstory pines are removed and the understory is thinned to promote growth. Cut tree criteria for the thinning should include dwarf mistletoe, but its presence does not have to be a primary criterion. Trees with limited infections may be left if other characteristics are acceptable and they meet spacing requirements.

The condition of the leave trees in the area of the overstory removal needs to be evaluated. Many of these trees have stagnated and are suppressed and may not adequately respond to release. Their small live crowns and the sudden exposure may result in mortality of some of the trees. The aggregation needs to be

evaluated for an adequate number of leave trees with acceptable crown characteristics to assure that this prescription will work.

Because of the ongoing mortality in the aggregation planned for a shelterwood, an inadequate number of trees may remain by the time of the harvest, at least in some areas. The prescription may need to be changed to a clearcut or patchcut because of an inadequate number of suitable overstory trees.

Stand T-8

Stand T-8 (T. 22 N., R. 9 W., section 29) is a 5 acre, mature mixed conifer stand in the Wye timber sale. It is a two-storied stand with ponderosa pine and Douglas-fir in the top layer and Douglas-fir, incense-cedar, black oak and Pacific madrone in the bottom layer. The prescription calls for a clearcut, saving advanced regeneration where possible. Because of visual objectives, a 30-50 foot wide corridor will be left undisturbed along the road. The area will be planted with Douglas-fir, ponderosa pine, and sugar pine.

No organisms were apparent that would interfere with the proposed prescription. A concern was raised about the condition of some of the Douglas-firs that will be left in the visual corridor. Several trees have thinning crowns and resin streaming on their boles. These trees are infested by early larval stages of the fir flatheaded borer, Melanophila drummondi.

The fir flatheaded borer is usually successful in completing development only in trees that are slow growers. More vigorous trees will overgrow and kill the developing larvae at an early stage. Several years may be required for a tree to be killed by these insects. Their presence is indicative of poor tree health and vigor. Trees should not be removed solely because resin streamers are present, but the streamers can be used to identify trees which warrant closer examination for other signs of low vigor. The borers do not develop high numbers that will emerge and attack surrounding healthy trees.

Some of the live Douglas-firs in the planned visual foreground may be killed by the fir flathead, even after the stand is harvested. Thinning the trees in this visual corridor could reduce stress on the residual trees and prolong their lives.

If you have any questions about this evaluation or require further assistance, please contact Dave Schultz or me at (916) 246-5101.

/s/ Gregg DeNitto

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